



EG8000mini Open Edition

User Guide

EG open series

Version: V1.0

Date: 2023-03-02

Status: Official document

Contents

Document History	2
Hardware Environment	3
1. Hardware Resources	3
2.SDK Introduce	3
3.Development Preparation	3
4.System login	4
User Development	5
1.Serial Port	5
2.LED Light	5
3.System Message	5
3.1 Get system information	5
3.2 Get 4G Information	6
3.3 Control 4G to reactivate the network	6
4.Button	7
5.RTC(hardware)	7
6.Wireless(LTE)	7
7.Internal procedures	7
Quick Test	8
1.Serial Port (232/485)	8
2.LED light	8
3.System SYS	9

Document History

Revision history

Version	Date	Author	Change description
1.0	2023-03-02	Lr	Init

Hardware Environment

1. Hardware Resources

Resource	Illustrate
CPU	Cortex-A7 Up to 1.2GHz
Memory	512M
Flash	8G eMMC

Interface	Quantity	Illustrate
wireless	1	LTE module, the specific module varies according to the country
RS232	1	RX/TX/GND interface
RS485	2	A, B (transmitting hardware control)
led light	3	1-hardware power light+1-user-defined light+1-LTE status light
button	1	System reset button
Network port	1	100M
RTC	1	Hardware RTC
hardware watchdog	1	Built-in automatic opening
power supply	1	DC 9-28V

2.SDK Introduce

Unzip the lib_eg8000mini_sdk.tar.gz file

Table of contents	illustrate
demo	Routine source code
tools	cross toolchain
lib	Available dependent library files

3.Development Preparation

Development system: ubuntu 16/18

Development environment: VScode

SSHTool: MobaXterm

Serial debugging tool: XCOM

Hardware tools: TTL to USB tool; 232 to USB tool; 485 to USB tool; network cable;



4. System login

Prepare a network cable to connect to the network port of the device. The factory default IP of the device is: 192.168.88.1;

The computer IP is set to the same network segment as 192.168.88.x. Use the MobaXterm tool (or other SSH tools) to enter the username and password and click Connect.

Default system login account: pi/root

 Password: EG12345678

Configuration webpage access address: 192.168.88.1 (network port IP)

 Password: EG12345678



User Development

1. Serial Port

Driver Correspondence

interface	drive path
RS485-1	/dev/ttyS3
RS485-2	/dev/ttyS2
RS232-1	/dev/ttyS1

2. LED Light

The LED is controlled by the wiringPi operation library; the hardware IO number corresponding to the user light: 2

3. System Message

System information requires the user to establish a TCP client connection to the internal port for reading/setting.

Connection address: 127.0.0.1:2023

The communication protocol is as follows

3.1 Get system information

Request frame format (json):

field	must	type	describe
msgType	yes	string	getSysBasic
data	yes	object	null

Response frame format:

field	must	type	describe
msgType	yes	the string	getSysBasicAck
data	yes	object	parameter root node, seedataframe format

dataframe format

field	must	type	describe
-------	------	------	----------

model	yes	the string	Device model
sn	yes	the string	Device unique serial number
version	yes	the string	Firmware version number
cpu	yes	int	cpu usage %
ram	yes	int	memory usage %
flash	yes	int	flash usage%
date	yes	int	timestamp

3.2 Get 4G Information

Request frame format (json):

field	must	type	describe
msgType	yes	the string	getLTEBasic
data	yes	object	null

Response frame format:

field	must	type	describe
msgType	yes	the string	getLTEBasicAck
data	yes	object	parameter root node, seedataframe format

dataframe format

field	must	type	describe
ip	yes	the string	4G get ip
mask	yes	the string	mask
gateway	yes	the string	gateway
ccid	yes	the string	sim card number
imei	yes	the string	imeiNumber
signal	yes	int	signal strength 0-100

3.3 Control 4G to reactivate the network

Request frame format (json):

field	must	type	describe
msgType	yes	string	setLTEact
data	yes	object	dataframe format

Data frame format:

field	must	type	describe
act	yes	int	Activate the network. 1: Confirm activation

Response frame format:

field	must	type	describe
msgType	yes	string	setLTE ActAck
data	yes	object	parameter root node, seedataframe format

dataframe format

field	must	type	describe
status	yes	int	0: success Other: failure

4.Button

The key is controlled by the internal program of the system and is used to reset the device web page login password and device IP address.

5.RTC(hardware)

RTC is controlled by the internal program of the system and is used to update the storage time automatically. In the offline state, the hardware RTC time can be manually updated through the configuration web page.

6.Wireless(LTE)

After the wireless module is powered on, the internal program of the system will automatically detect and register by dialing by default, and the user does not need to care. Device configuration web page for wireless information viewing and setting. If reactivation is required, see "Control 4G Reactivation Network"

7.Internal procedures

The device runs internal programs by default, including but not limited to: device initialization, network management, watchdog, device configuration services and other functions. The internal program of the device must be kept alive by default, otherwise the device will start to run abnormally.


```

root@IOTRouter:/home/pi/test/led#
root@IOTRouter:/home/pi/test/led# ./ex_led_exe

*****测试程序*****
LED测试:控制用户灯的亮灭

*****开始测试*****
选项1: 灭
选项2: 亮
选项其他: 退出
*****
请输入测试项: 1

*****开始测试*****
选项1: 灭
选项2: 亮
选项其他: 退出
*****
请输入测试项: 2

*****开始测试*****
选项1: 灭
选项2: 亮
选项其他: 退出
*****
请输入测试项:

```

The on and off of the user light on the device can be observed.

3.System SYS

Compilation instructions:

- 1、 Enter the system /home/pi/test/sys directory;
 - 2、 Execute make clean; make;
- Execute the ex_sys_exe file

demo demo:

```

root@IOTRouter:/home/pi/test/sys# ./ex_sys_exe

成功连接内部系统
*****测试程序*****
系统测试:获取设置系统信息

*****开始测试*****
选项1: 获取系统信息
选项2: 获取4G信息
选项3: 4G重播
选项其他: 退出
*****
请输入测试项: 1

*****开始测试*****
选项1: 获取系统信息
选项2: 获取4G信息
选项3: 4G重播
选项其他: 退出
*****
请输入测试项: 2
接收系统回复数据[145]: {"msgType": "getSysBasicAck", "data": {"model": "EG8000mini", "sn": "02C000811F0ED1A3", "version": "3009", "cpu": "3", "ram": "20", "flash": "19", "date": "1677812818"}}
获取系统信息返回

请输入测试项: 2

*****开始测试*****
选项1: 获取系统信息
选项2: 获取4G信息
选项3: 4G重播
选项其他: 退出
*****
请输入测试项: 2
接收系统回复数据[164]: {"msgType": "getLTBasicAck", "data": {"ip": "10.209.172.119", "mask": "255.255.255.255", "gateway": "", "ccid": "898604293619f0906128", "imei": "866930061440138", "signal": "74"}}
获取4G信息返回

```